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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Steve Biellak

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EXAMINER

PHAM, HOA Q

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/891,693

Applicant(s)

BIELLAK ET AL.

Examiner

Hoa Q. Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2003.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-29 and 31-85 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,3,4,6-29,31-48,50-69 and 71-85 is/are rejected.
7) ☒ Claim(s) 5,49 and 70 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/27/03.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 21-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 21-22 are dependent on canceled claim 2.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-4, 6-29, 31-45, and 83-85 rejected under 35 U.S.C. 103(a) as being unpatentable over Koizumi et al (4,740,079) in view of Yamaguchi et al (4,449,818) (of record).

Regarding claims 1, 6-9, 11-13, 20-24, 26, 28-29, 31, 33-35, and 42-44, Koizumi et al discloses a method and apparatus for detecting foreign substances comprises a source (15H and 15L) for supplying a first beam at a first wavelength along a first path and second beam at a second wavelength along a second path onto a surface of the sample (1) said two paths being at different incidence angles to the sample surface; one or more detectors (20H and 20L) for detecting radiation at the first and second wavelengths, and an optical device (9) for receiving scattered light from the sample

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surface and originating from the first and second beams and focusing the scattered light to the detectors (figure 17, column 9, lines 6-14). Koizumi et al teach that the wavelengths are within the visible range and does not teach that the wavelength is in the ultraviolet spectrum of radiation (ultraviolet or deep ultraviolet wavelength); however, it is well known in the art to use different ranges of wavelengths for different types of samples. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the wavelength in the ultraviolet spectrum if different types of samples are inspected, for example, an opaque layer, sample with multi-layers or detecting defects between the layers.

Regarding claims 3-4, see figures 18 of Koizumi.

Regarding claims 10 and 32, see column 9, lines 53-60 for visible light spectrum.

Regarding claim 14, see column 18, lines 49-50 for the angle of 2 degrees from the horizontal plane.

Regarding claims 16-17, see figures 17, 21 and 22.

Regarding claims 18-19, 27, and 39, see column 9, lines 53-60 for the use of laser source.

Regarding claims 15, 36-38, Yamaguchi et al, from the same field of endeavor, teaches that the second light source can be arranged at zero degrees with respect to the normal. Thus, it would have been obvious to arrange the second light beam of Koizumi et al at around zero degrees as taught by Yamaguchi et al if concave shape defects are detected.

Regarding claim 25, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in Koizumi et al a beam splitter for splitting two different light beams if a single light source is used.

Regarding claim 40, the use of crystals is well known in the art.

Regarding claim 41, it would have been obvious to use the basic device of Koizumi et al for the purpose of detecting defects on the top and within the substrate because the device would function in the same manner.

Regarding claims 45 and 83-84, see column 18, lines 55-59 for silicon on insulator wafer.

Regarding claim 85, see figure 22 for scanning mechanism (43, 47 and 50).

4. Claims 46-48, 50-69, 71-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koizumi et al in view of Hunt (5,623,341) and Yamaguchi et al (4,449,818) (of record).

Regarding claims 46-48, 55-58, 60-62, 67-69, 74-75, 81, and 82; Koizumi et al discloses a method for detecting foreign substances which has all the features of the present invention except that the wavelength is in the ultraviolet spectrum of radiation (ultraviolet or deep ultraviolet wavelength); however, such a feature is known in the art as taught by Hunt. Hunt teaches that it is well known in the art to use different ranges of wavelengths for different types of samples (column 1, lines 39-57, column 7, lines 17-26 and column 8, lines 17-31). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the wavelength in the

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ultraviolet spectrum if different types of samples are inspected, for example, an opaque layer, sample with multi-layers or detecting defects between the layers.

Regarding claims 50-53, 59, 72-73, 77-78, 80, see column 8, lines 17-31 of Hunt for the use of different wavelengths.

Regarding claims 54, 63, 69, 75, Yamaguchi et al, from the same field of endeavor, teaches that the second light source can be arranged at zero degrees with respect to the normal. Thus, it would have been obvious to arrange the second light beam of Koizumi et al at around zero degrees as taught by Yamaguchi et al if concave shape defects are detected.

Regarding claim 71, see figure 29 of Koizumi et al for beam splitter (15C).

Regarding claim 40, the use of crystals is well known in the art.

Regarding claim 60, it would have been obvious to use the basic device of Koizumi et al for the purpose of detecting defects on the top and within the substrate because the device would function in the same manner.

Regarding claims 64 and 76, the objective lens (9) in figure 22 of Koizumi et al is considered as a collector.

Regarding claim 82, see figure 22 of Koizumi et al for scanning mechanism (43, 47 and 50).

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11

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F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1, 3-5, 14-15, 20-22, 24, 26, 36-38 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-51 of U.S. Patent No. 6,201,601, especially, see claims 1, 5, 7, 11, 12, 29, 30, 32, 36, 37. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present claimed invention is broader than that of patent and all the limitations of the present claims 1-5, 14-15, 20-22, 24, 26 are recited in claims 1-51 of the patent.

7. Claims 1, 3-5, 14, 15, 20, 21, 22, 24-26, and 36-38 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 85-114 of copending Application No. 09/746,141, especially see claims 85-90, 92, 101, 102, 103, 108, 114. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present claimed invention is broader than that of patent and all the limitations of the present claims 1-5, 14, 15, 20, 21, 22, 24-26, and 36-38 are recited in claims 85-114 of the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

8. Claims 6-13, 16-19, 23, 25, 27-29, 31-35, and 39-45 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-51 of U.S. Patent No. 6,201,601.

'601 does not teach that the wavelength is in the ultraviolet spectrum of radiation; however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the wavelength in the ultraviolet spectrum if small particles are detected.

Regarding claim 25, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in '601 a beam splitter for splitting two different light beams if a single light source is used.

Regarding claim 41, it would have been obvious to use the basic device of '601 for the purpose of detecting defects on the top and within the substrate because the device would function in the same manner.

9. Claims 6-13, 16-19, 23, 27-29, 31-35, 39-45 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 85-114 of copending Application No. 09/746,141.

'141 does not teach that the wavelength is in the ultraviolet spectrum of radiation; however, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to use the wavelength in the ultraviolet spectrum if small particles are detected.

Regarding claim 41, it would have been obvious to use the basic device of '141 for the purpose of detecting defects on the top and within the substrate because the device would function in the same manner.

This is a provisional obviousness-type double patenting rejection.

Allowable Subject Matter

10. Claims 5, 49, and 70 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

11. Applicant's arguments filed 2/27/03 have been fully considered but they are not persuasive.

a. Applicant stated that a Terminal Disclaimer has been filed to overcome the obviousness-type double patenting rejection; however, the Terminal Disclaimer has not been found. Applicant is suggested to refile the Terminal Disclaimer.

b. It is well known in the surface inspection art to choose different light sources at different wavelength ranges (visible, infrared or ultraviolet) if different types of objects to be inspected as mentioned above. In addition, such well-known teaching is mentioned on Hunt reference.

c. Koizumi et al teaches the use of angle of 2 degree from the horizontal plane; in other words, 88 degrees from the normal. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the angle of 70 degrees from the normal because the device would function in the same manner. In addition, the present specification does not provide any un-expected results when using the angle of 70 degrees.

d. Claim 26 is broad enough to read on the teaching of Koizumi et al. "Objective lens (9)" of Koizumi et al can be considered as a collector that is symmetric about a line (optical axis).

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoa Q. Pham whose telephone number is (571) 272-2426. The examiner can normally be reached on 7:30AM to 6 PM, Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Hoa Q. Pham
Primary Examiner
Art Unit 2877

HP
October 15, 2004